

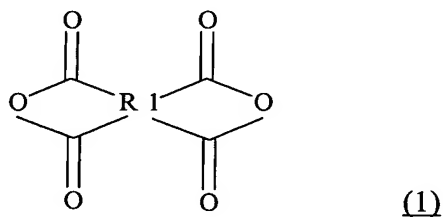
AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings of claims in the application:

1. (Currently Amended) A method of forming a cavity between multilayered wirings, ~~which comprises~~ comprising:

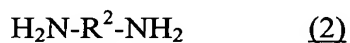
~~a step of~~ coating the surface of a first dielectric film formed on a semiconductor substrate with a polyamic acid and/or a polyimide obtained from at least one alicyclic tetracarboxylic acid dianhydride represented by the following general formula (1) and at least one alicyclic diamine represented by the following general formula (2):

General formula (1)



wherein R¹ represents a tetravalent alicyclic hydrocarbon group having 4-20 carbon atoms, the tetravalent alicyclic hydrocarbon group being able to contain a cyclic ether structure in the molecule, and

~~General formula (2)~~



wherein R² represents a divalent alicyclic hydrocarbon group having 4-20 carbon atoms,

~~a step of~~ patterning the polyamic acid and/or the polyimide as a cavity-forming polymer,

~~a step of~~ forming a second dielectric film on the cavity-forming polymer containing a metallic wiring, and

~~a step of~~ removing the cavity-forming polymer between the multilayered wirings by heating to form a cavity between the metallic wirings.

2. (Original) The method as claimed in claim 1, wherein the polyamic acid and/or the polyimide has a weight average molecular weight, as reduced into polystyrene, in the range of 1,000-500,000.

3. (Original) The method as claimed in claim 1, wherein the polyamic acid and/or the polyimide has a weight loss on heating at 350°C for one hour in an inert gas atmosphere and/or a vacuum atmosphere of 5% by weight or less and a weight loss on heating at 500°C for one hour in an inert gas atmosphere and/or a vacuum atmosphere of 80% by weight or more.

4. (Original) The method as claimed in claim 1, wherein the polyamic acid and/or the polyimide has a glass transition temperature of 200°C or higher.

5. (Original) The method as claimed in claim 1, wherein the polyamic acid and/or the polyimide has an elastic modulus at 25°C of 5 GPa or more.

6. (New) The method as claimed in claim 1, wherein said alicyclic tetracarboxylic acid dianhydride represented by the general formula (1) is 4,10-dioxatricyclo[6.3.1.0^{2,7}]-dodecane- 3,5,9,11-tetraone.

7. (New) The method as claimed in claim 1, wherein said alicyclic diamine represented by the general formula (2) is a member selected from the group consisting of 1,3-diaminocyclohexane, 1,4-diaminocyclohexane, 1,2-bis(aminomethyl)cyclohexane, 1,3-bis(aminomethyl)cyclohexane, 1,4-bis(aminomethyl)cyclohexane, isophoronediamine, 4,4'-diaminobiscyclohexyl, 3,3'-diaminobiscyclohexyl, bis(4-aminocyclohexyl)methane, bis(3-aminocyclohexyl)methane, 2,6-diamino-dicyclo[2.2.1]heptane, 2,5-diamino-dicyclo[2.2.1]heptane, 2,3-bis(aminomethyl)-dicyclo[2.2.1]heptane, 2,5-bis(aminomethyl)-dicyclo[2.2.1]heptane, 2,6-bis(aminomethyl)-dicyclo[2.2.1]heptane, 3,9-bis(aminomethyl)-tricyclo[6.2.1.0^{2,6}]decane, 4,9-bis(aminomethyl)-tricyclo[6.2.1.0^{2,6}]decane, 5,9-bis(aminomethyl)-tricyclo[6.2.1.0^{2,6}]decane, 1,3-diaminoadamantane, or 1,3-bis(aminomethyl)adamantane and mixtures thereof.

8. (New) The method as claimed in claim 1, wherein said aliphatic tetracarboxylic acid dianhydride represented by the general formula (1) and said alicyclic diamine represented by the general formula (2) are reacted in an aprotic polar solvent and/or a phenol based solvent in a solids concentration of 1-30 % by weight at a temperature in the range of 0-150°C for 1-24 hours, to obtain a polyamic acid solution.

9. (New) The method as claimed in claim 8, further comprising:
adding a dehydrating agent in an amount of 1-20 moles per mole of the aliphatic tetracarboxylic acid dianhydride represented by the general formula (1).

10. (New) The method as claimed in claim 8, further comprising:
adding an imidation catalyst in an amount of 0.5-30 moles per mole of the aliphatic tetracarboxylic acid dianhydride represented by the general formula (1).
11. (New) The method as claimed in claim 8, wherein said aprotic polar solvent is selected from the group consisting of γ -butyrolactone, cyclohexanone, N-methyl-2-pyrrolidone, N,N-dimethylacetamide, N,N-dimethylformamide, dimethyl sulfoxide, tetramethylurea, hexamethyl sulfonamide and mixtures thereof.
12. (New) The method as claimed in claim 8, wherein said phenol based solvent is selected from the group consisting of m-cresol, xlenol, phenol, halogenated phenols and mixtures thereof.
13. (New) The method as claimed in claim 1, wherein said alicyclic tetracarboxylic acid dianhydride represented by the general formula (1) and said alicyclic diamine represented by the general formula (2) are used in a proportion so that an amount of the acid anhydride group in the alicyclic tetracarboxylic acid anhydride is 0.2-2 equivalents to one equivalent of the amino group in the alicyclic diamine compound.
14. (New) The method as claimed in claim 9, wherein said dehydrating agent is selected from the group consisting of acetic anhydride, propionic anhydride, trifluoroacetic anhydride and mixtures thereof.

15. (New) The method as claimed in claim 9, wherein said imidation catalyst is a tertiary amine that can be dissolved or dispersed in the aprotic polar solvent and/or phenol based solvent.

16. (New) The method as claimed in claim 9, wherein said imidation catalyst is an aliphatic tertiary amine selected from the group consisting of trimethylamine, triethylamine, tripropylamine, tributylamine and mixtures thereof.

17. (New) The method as claimed in claim 9, wherein said imidation catalyst is N,N-dimethylaniline.

18. (New) The method as claimed in claim 9, wherein said imidation catalyst is selected from the group consisting of pyridine, 2-methylpyridine, N-methylimidazole, quinoline and mixtures thereof.

19. (New) A semiconductor device, comprising:
a cavity between metallic wirings which is obtained by the method as claimed in claim 1.

BASIS FOR THE AMENDMENT

Claim 1 has been amended as supported by Claim 1 as originally filed.

New Claims 6-19 have been added.

New Claim 6 is supported at page 8, second paragraph.

New Claim 7 is supported at page 14, second paragraph.

New Claim 8 is supported at page 14, last paragraph to page 15, first paragraph.

New Claims 9-18 are supported at pages 15 and 16.

New Claim 19 is supported at page 19, first full paragraph.

No new matter is believed to have been added by entry of this amendment. Entry and favorable reconsideration are respectfully requested.

Upon entry of this amendment Claims 1-19 will now be active in this application.